



Going Green: Environmental Stewardship

Connecting Women to Power
Business Conference
Friday, June 28, 2013

2013 Connecting Women to Power
Business Conference



The Honorable
Mary Ann Lutz

Mayor
City of Monrovia

Water Water Everywhere, but not California

Mary Ann Lutz

Mayor, City of Monrovia

Former Chair, LA Regional Water Quality Control Board

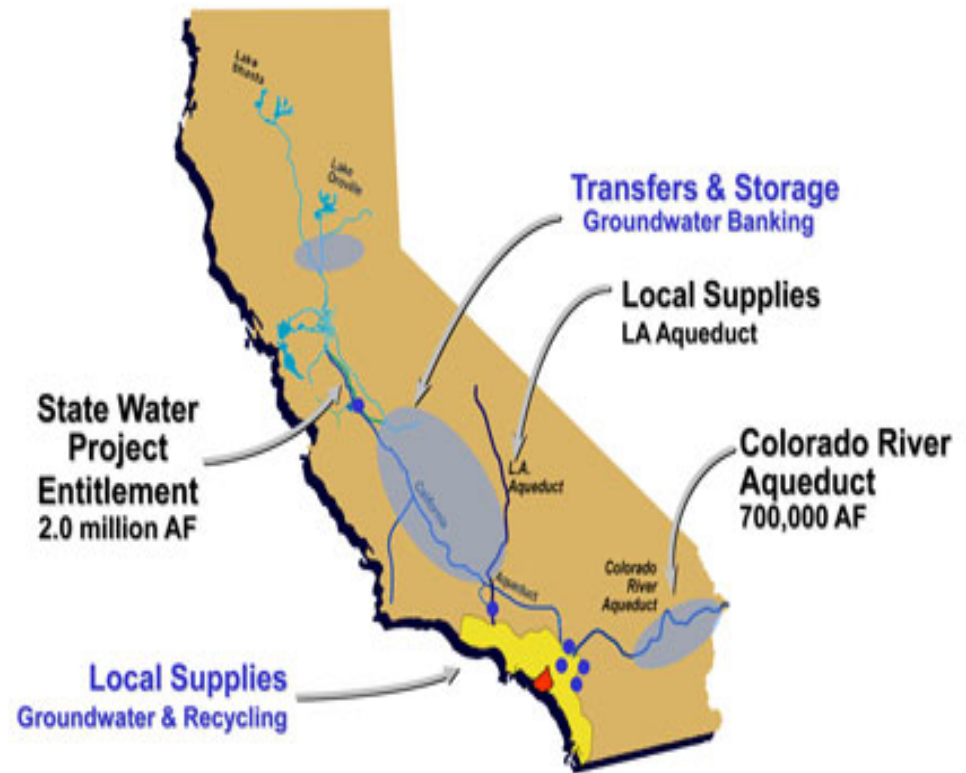
One water?

- *Potable (drinking) water
- *Waste Water
- *Stormwater
- *Recycled / Recharged Water

Where does our drinking water come from?

- * Three main sources:
 - * State Water Project – The Delta
 - * Colorado River
 - * Underground Aquifers (San Gabriel Valley Water Basin)

Where Does Southern California Get Water ?



State Water Project



State Water Project – Delta

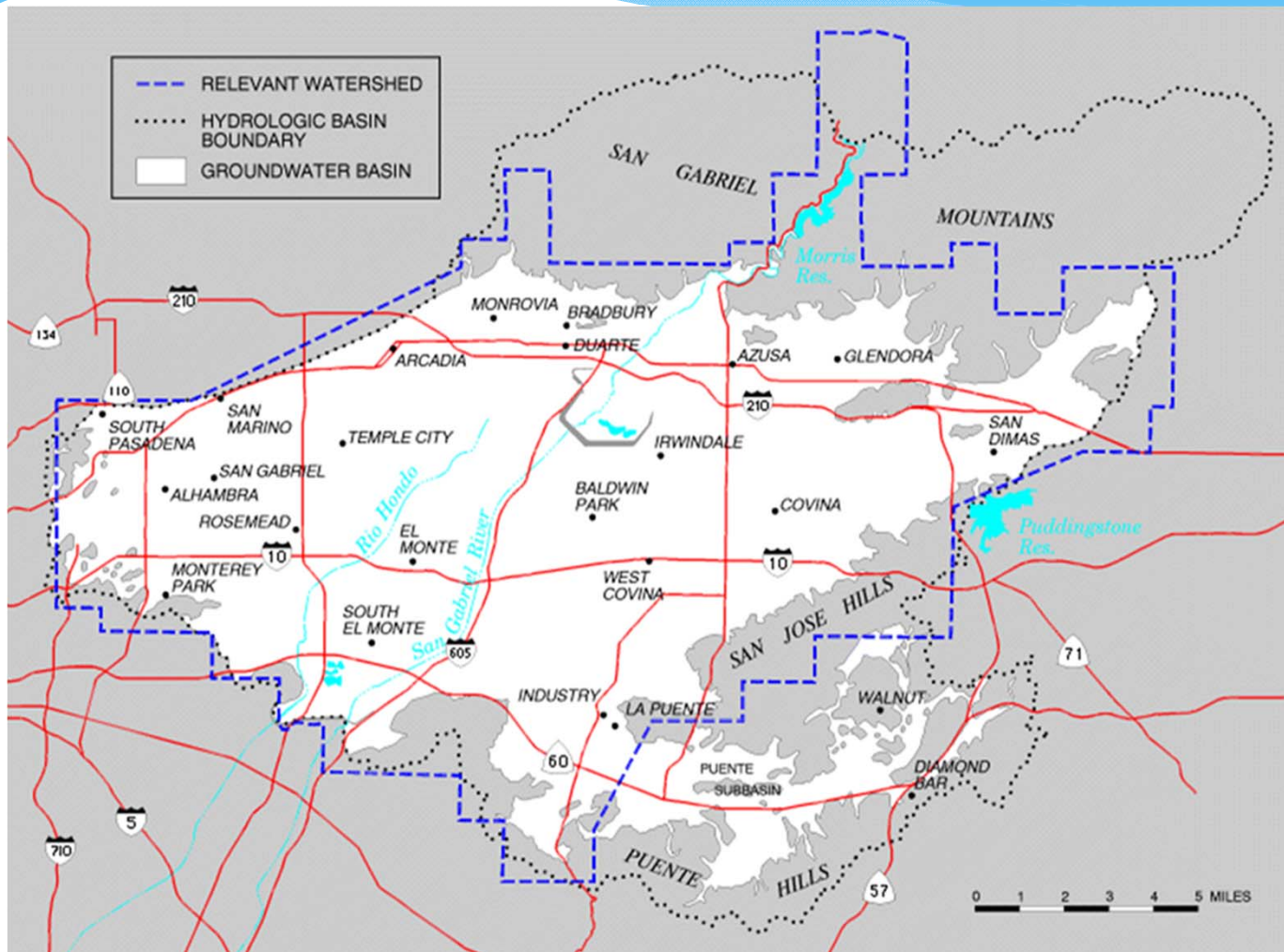
- * The State Water Project
 - * The Delta - snowmelt from Sierras to Sacramento- San Joaquin Delta.
 - * Networks of dams, aqueducts & pumps move water through state
 - * Serves 25 million Californians in the Bay Area, Central Coast, Los Angeles Basin (city of LA), San Joaquin Valley, Inland Valley, San Diego – drinking water and farmland irrigation
 - * Serious issues: Delta distress: “The Delta ecosystem faces numerous threats from water diversions, unreliable levees, invasive species, polluted runoff from agriculture and urban areas, sea level rise, saltwater intrusion and more. California must implement a science-based plan to ensure safe and adequate water supplies while addressing severe challenges facing the Delta.” Governor Jerry Brown
 - * The Bay Delta Conservation Plan

Colorado River Aqueduct



- Services City of LA and many cities in LA County
- Colorado, Utah, New Mexico, Arizona, Nevada, Wyoming, and California use the river's water for farming, drinking, growing lawns, and generating hydroelectric power.

San Gabriel Valley Water Basin



- ✓ Serves 41 cities and agencies in San Gabriel Valley
- ✓ Provides approx. 80% of drinking water
- ✓ Superfund site
- ✓ Recharged

Water Supply Outlook 2013

GRIM!

According to the Association of California Water Agencies

- * Northern California is experiencing a short-term period of “moderate” drought and Central and Southern California is under “severe” drought, according to National Oceanic and Atmospheric Administration’s Climate Prediction Center.
- * Many cities taking drastic measures to conserve.

Wastewater and Stormwater

Waste Water

- * Where does it go?
- * What is done with it?
- * Recycled?

Stormwater

- * Where does it come from?
- * Polluted how?
- * Where does it go?
- * Recycle / Recharge?

The Elephant in the Room



Steps to take to reduce

- * Post a hotline in bathrooms and kitchens to report leaks or water waste to facility managers or maintenance personnel.
- * Create a suggestion and incentives system at your organization to recognize water-saving ideas.
- * Include a water-saving tip in your employee newsletter featuring how much water can be saved with each action. Find 100+ tips at wateruseitwisely.com.
- * Implement a water management plan for your facility, then educate employees on good water habits through newsletters and posters.
- * Publish your organization's monthly water use to show progress toward water-saving goals.

More steps to reduce

- * Invite your water utility conservation staff to your organization for Earth Day and other environmental events to help promote water savings.
- * Have a water audit done for your facility to find out the recommended water use for your operations, then make sure someone monitors your utility bills to gauge your monthly consumption.
- * Have maintenance personnel regularly check your facilities for leaks, drips and other water waste.
- * If you use processed water in your business or facility, look into water recycling and reuse.
- * Contact your water utility to see if rebates are available for purchasing water-efficient fixtures, equipment or for facility audits. –



*See more at:

www.wateruseitwisely.com

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Kerinia Cusick

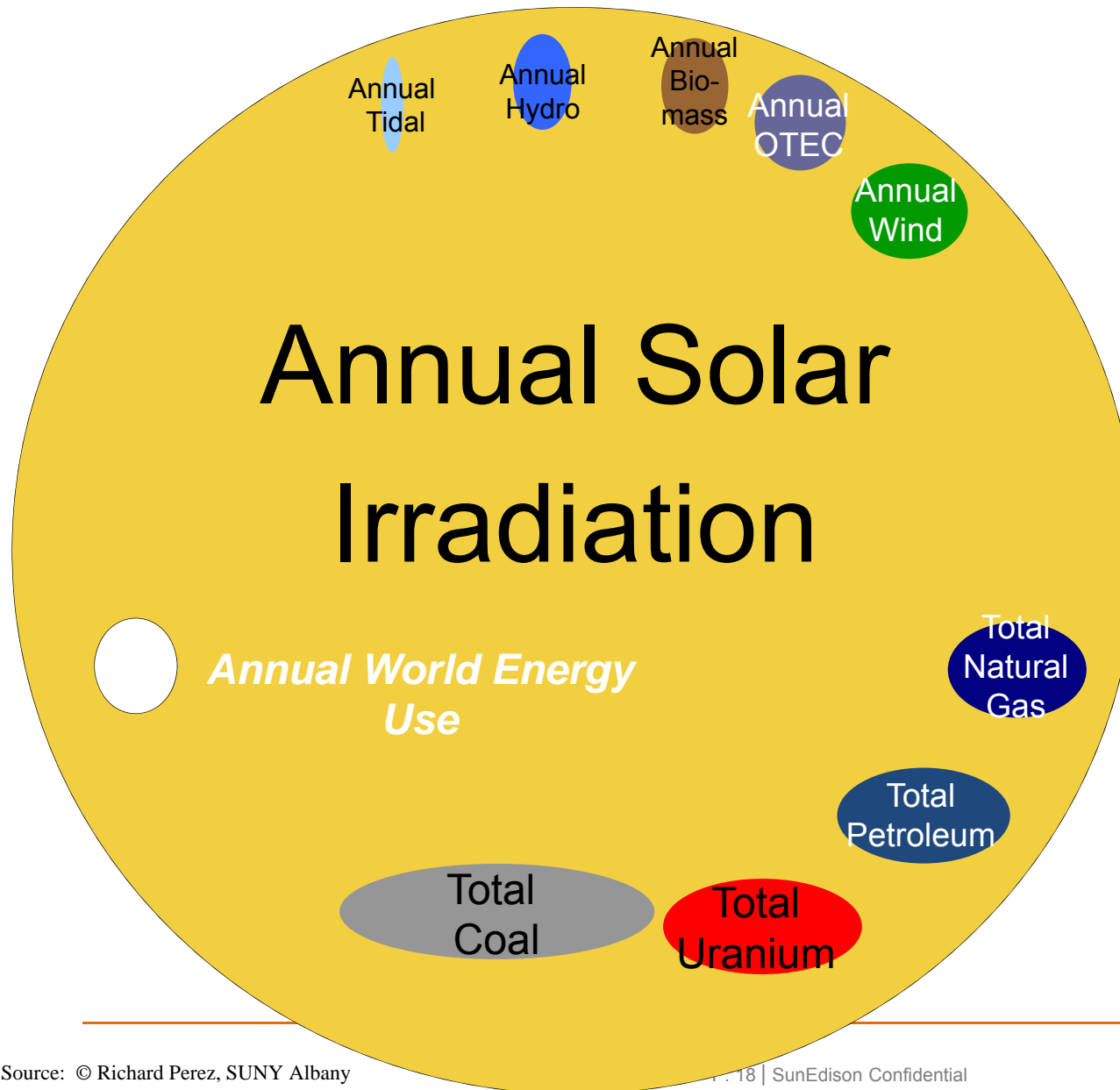
Policy Director
SunEdison

Going Green: Is Solar An Option?

Kerinia Cusick, Managing Director



Solar is our most abundant source of energy

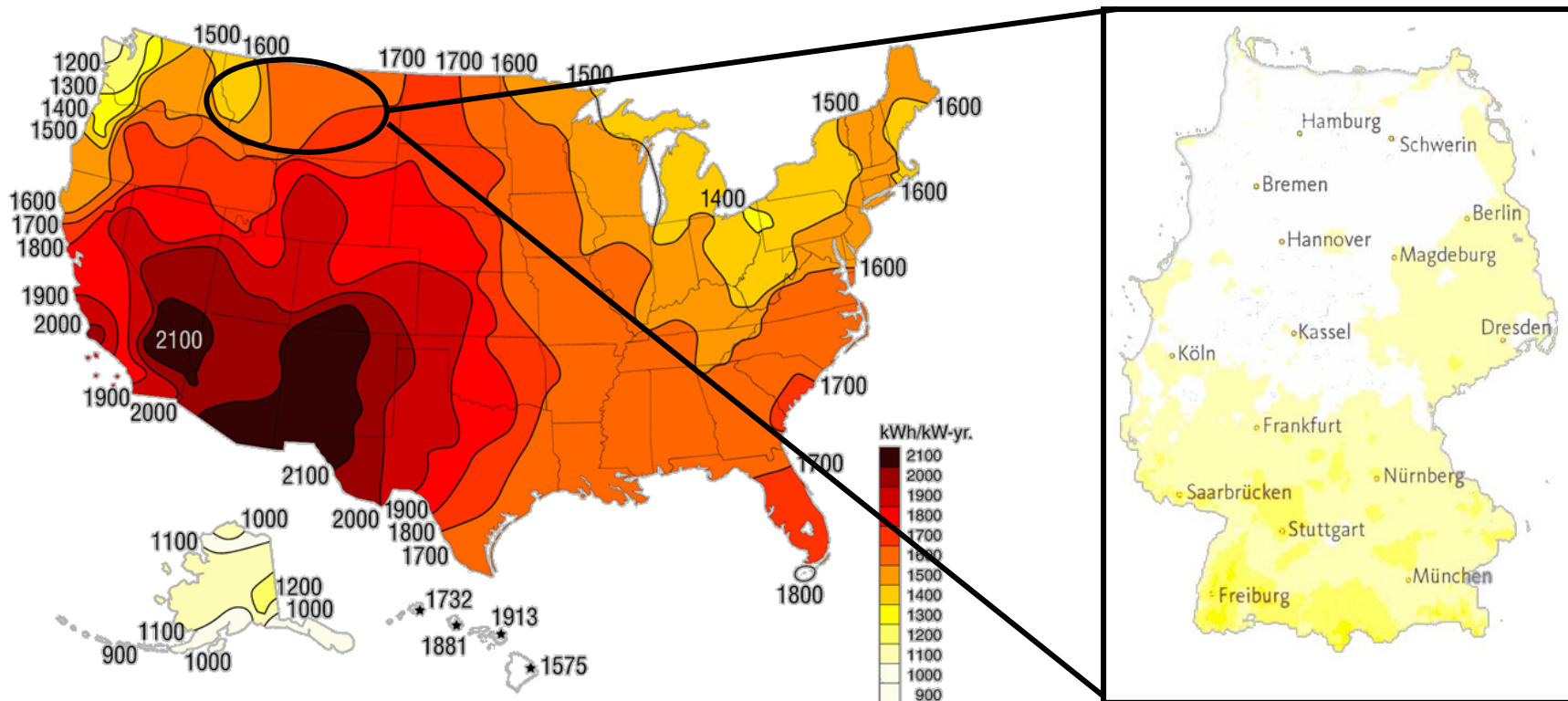


Energy available
(Terawatt years)

Renewable	ANNUAL
Solar Radiation	23,000
Wind	25 - 70
Ocean Thermal	3 - 11
Biomass	2 - 6
Hydroelectric	3 - 4
Geothermal	0.3 - 2
Tidal	0.3
Traditional	TOTAL
Coal	900
Uranium	90 - 300
Petroleum	240
Natural Gas	215

2009 global consumption of
energy = 16 terawatt
years/year

The US has excellent solar resources



- In comparison, Germany has:
 - slightly less land than Montana and far inferior insolation to the U.S.
 - already demonstrated if can meet nearly 50% of its electricity needs with solar*

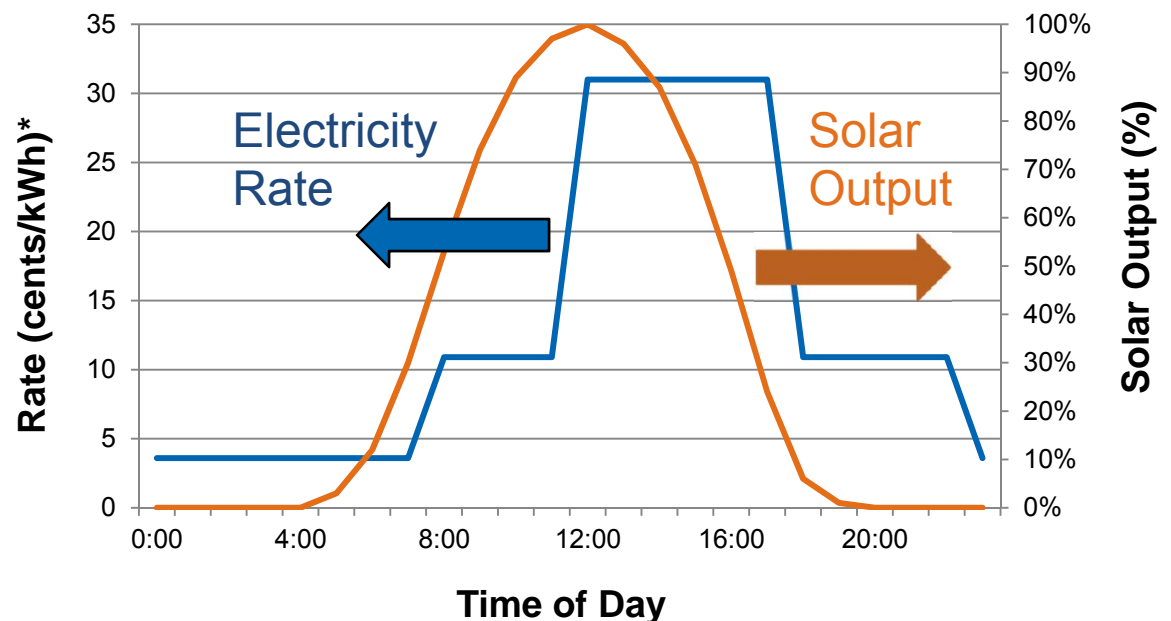
* Source: <http://www.smartplanet.com/blog/intelligent-energy/solar-electricity-world-record-germany-cranks-half-its-power-with-pv/16354>

Solar is an increasingly popular option in the US

- 48% of all new electrical generation capacity installed in Q1 2013 was solar
- California leads the nation
 - Over **150,000 customers self-generate with solar**, representing over **1,500 MW of distributed generation capacity**
 - An additional **2,000MW of utility-scale solar** is installed in California
 - In 2012, **\$2.6 billion** was invested in **California** to install solar on homes and businesses.
 - **1584 solar companies** are at work throughout the value chain in California, **employing 43,700 workers**

Solar generates during most expensive hours

- In California, all businesses will be on a “time of use” rate by the end of the year
- “Time of Use” rates change during the day – from cheap electricity at night to expensive during peak daytime hours
- Solar generates most electricity at noon, thereby offsetting some of the most expensive electricity businesses will purchase, and the use of trackers can improve output in afternoon
- Solar can result in significant savings



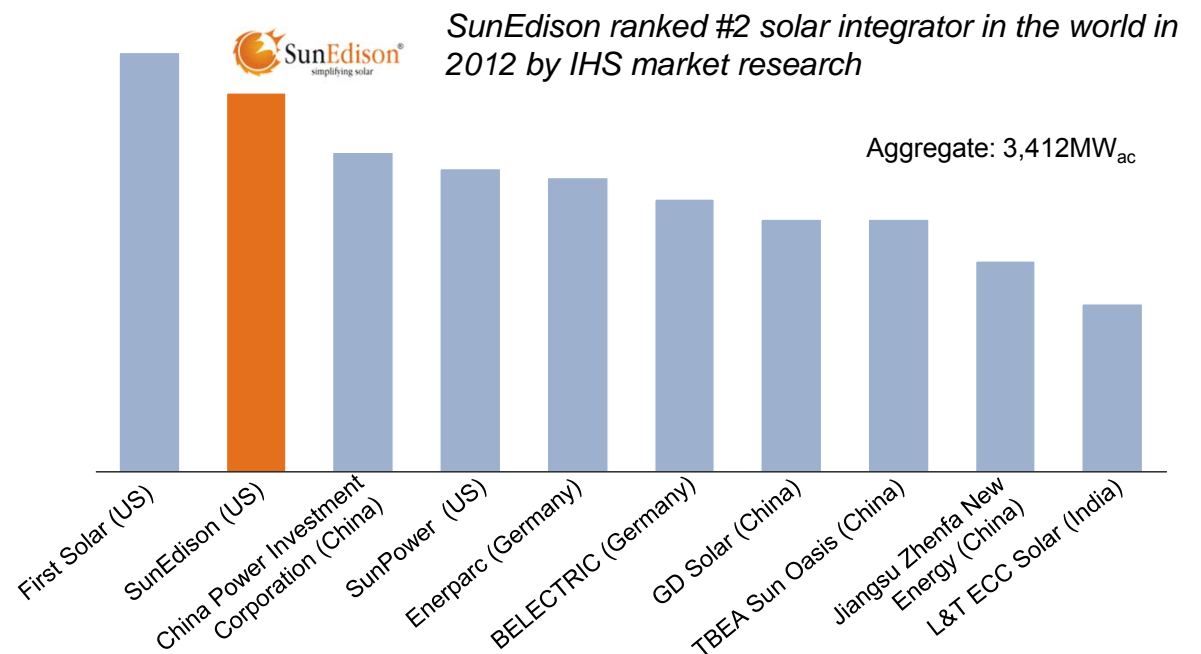
*Sample SCE time of use (TOU) rate shown for commercial customers

Questions to consider when evaluating solar

- Have access to a un-shaded location to put the solar panels (roof, parking lot, open land)? If it is a roof, has the roof been recently replaced?
- Prefer to own or purchase the electricity that is generated by the solar system (aka a power purchase agreement)?
- Prefer to take on the operational responsibility of the solar system or leave it to someone else?
- Have a tax bill to offset the federal investment tax credit? If you don't, a power purchase agreement still allows home/business owner to benefit from the tax credit.
- If prefer a power purchase agreement approach, able to sign a long-term contract for electricity generated by solar system?

SunEdison: A Successful Global Solar Company

- >\$200M financing agreement with IFC, OPIC and UniCredit in 2012
- US\$1.5B energy fund partnership with First Reserve
- First to introduce the solar power purchase agreement, now the leading business model in the industry
- Systems operating at >105% of underwritten investment
- Built first utility scale project in the US and Canada; developed the largest EU single operating solar plant
- Largest solar fleet under O&M with leading 24/7 monitoring services



Diversified Business Model

Commercial Rooftops

- ~100 kW – 1 MW
- Commercial and industrial rooftops
- Systems integrators for PV rooftops owned by building owners, funds
- PPA programs for different hosts: commercial, industrial, public sector



Utility Scale

- Greater than 1MW
- Large scale ground-mount projects
- Distributed generation for Utilities
- Development, engineering, construction and O&M services
- Construction and long-term financing
- Premium guarantees



Residential & Small Systems

- Below ~100 kW
- Residential and small commercial
- Based on a Certified Installers Program (CIP)
- Premium customer services: training, logistic, financing, software, after-sales, 24 hour support, online monitoring





Connecting Women to Power “Going Green” Sapphos Environmental, Inc. An Environmentally Friendly Business

**Marie C. Campbell
President**



Sapphos Environmental, Inc.

- Evaluates utility scale green and renewable and sustainable energy projects
- Entitled over 2,000 MW of renewable energy in the western United States
 - Capable of supplying 2 million homes or a community the size of the City of Houston
 - Reduces reliance on carbon fuels



Rehabilitated Commercial Building

- Received Governor's Award for Economic and Environmental Leadership for Solar Demonstration Project
 - Headquartered in a Mid-Century OK Earl Concrete tip-up building
 - Retrofitted headquarters office to meet Green Building standards
 - Reduced consumptive use of energy by 50% using conventional energy saving technology
 - Refinanced building mortgage to include solar photovoltaic project
 - Replaced asphalt parking lot with porous concrete



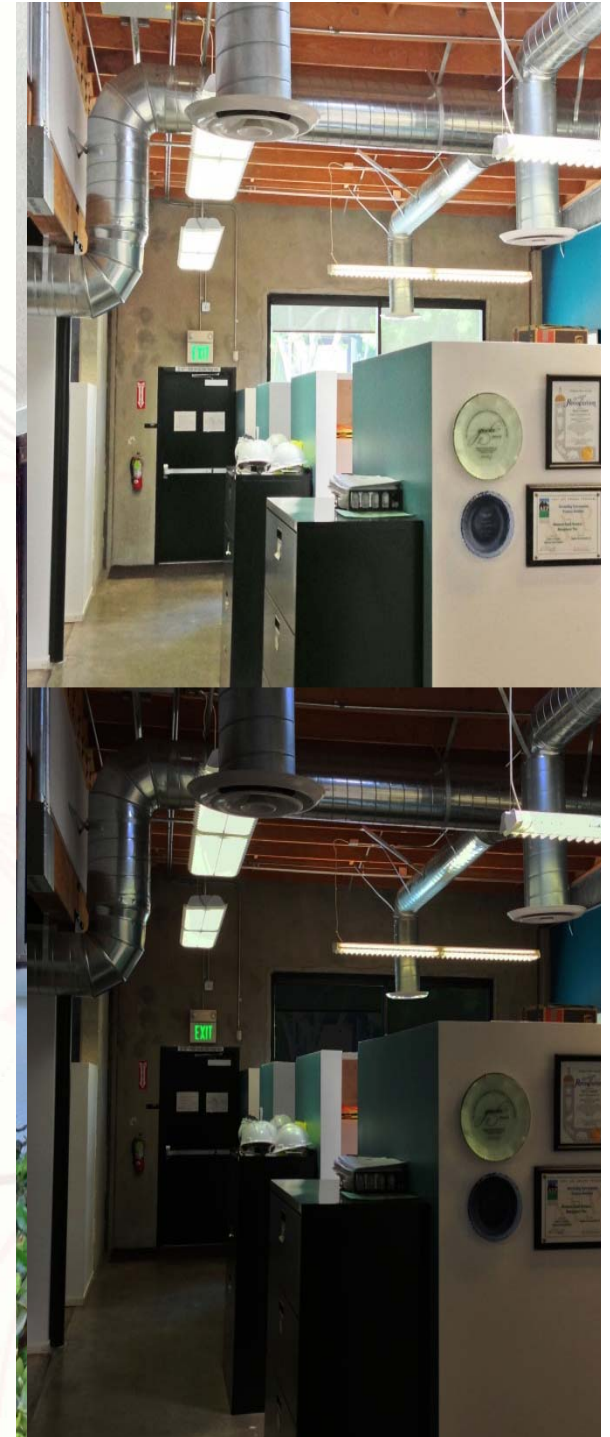
Green Building Standards

- Located ¼ mile from Metro Gold Line Station
- Recycled building materials from prior location
- Showers for employees
- Water conserving urinals
- On-demand water heaters



Reduced Consumptive Use of Energy

- E-rated appliances
- Solar tubes
- Scheduled nighttime selected power shutdown
- Glazed windows
- Energy-saving light bulbs



82-kV Solar Photovoltaic System

- Remaining 50% of energy demand after conventional energy saving methods offset with an 82-kV solar photovoltaic system
 - Cost built in to refinancing of the building mortgage
 - 27-kV rooftop installation
 - 56-kV carport installation



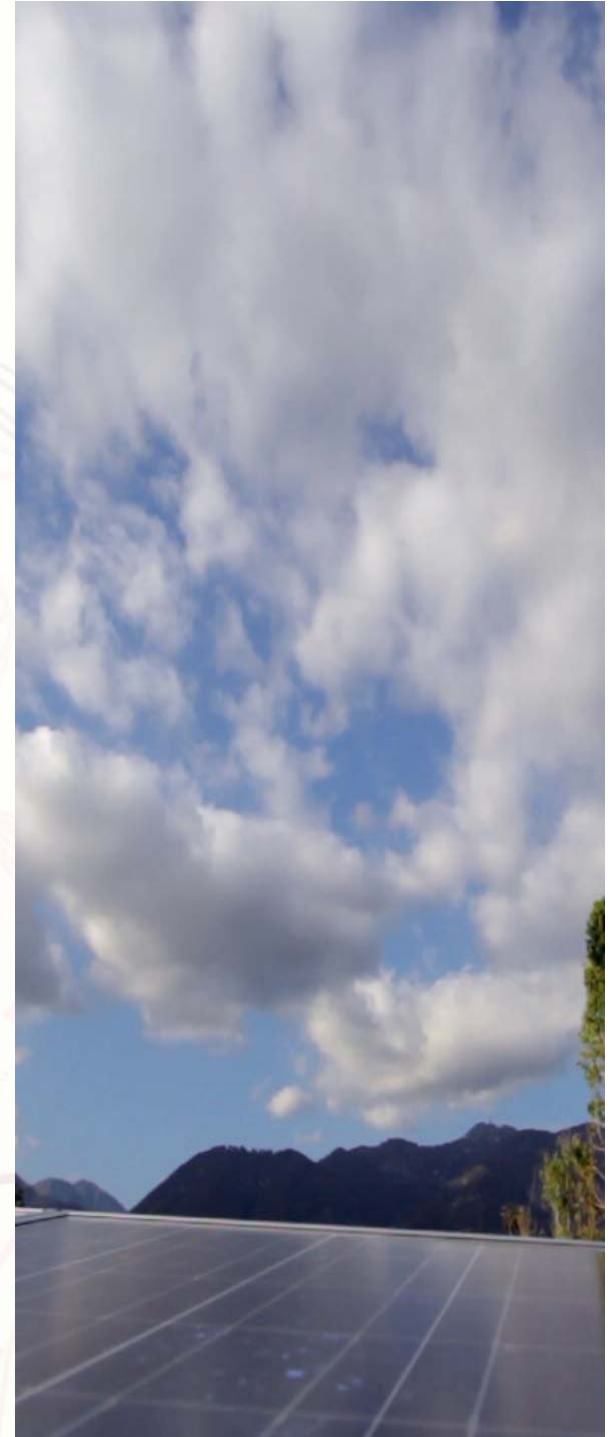
Reduced Carbon Footprint at Sapphos Environmental, Inc.

- Audit of energy consumption
- Accommodating alternative modes of travel
- Implementing energy conserving strategy
- Installing energy conserving devices
- Conversion to renewable energy



Benefits of “Going Green”

- Supports federal, state, and local goals and objectives for reducing carbon footprint
- Demonstrates economic viability of investment in green technology
- Serves as an example for other community institutions, businesses, and residents
- Provides a quality work environment



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Felicia Williams

Appointee
Pasadena Center Operating
Company

Being Green = Saving Green

*Partnerships to
Lower Your Footprint
while Lowering Your Bills*

Overview

- Sustainable Business Models
 - Strategic vs. Investments
- Key Investment Areas
 - Energy
 - Water
 - Air Quality
- Investment Overview
 - Spectrum
 - Incentives
 - Partnerships
- Summary – what can you do?!



- *California ranks #2 in energy efficiency – 2% of electricity saved per year*
- *A traditional light bulb is more of a heater – 90% of energy is converted to heat*
- *A CFL lasts 10x longer than a traditional light bulb*



Strategy vs. Investment

- Strategy – sustainability as core business
 - Consulting, services, products
 - Strategic transformation – Waste Management
- Investment – purchasing fixtures, appliances, supplies, or engaging in sustainable practices
 - Key Areas:
 - Energy Efficiency – lighting, climate control, equipment, generation
 - Water Conservation – irrigation, landscaping, fixtures, re-charge/recycling
 - Air Quality – transportation, waste reduction/recycling, reduce energy/water

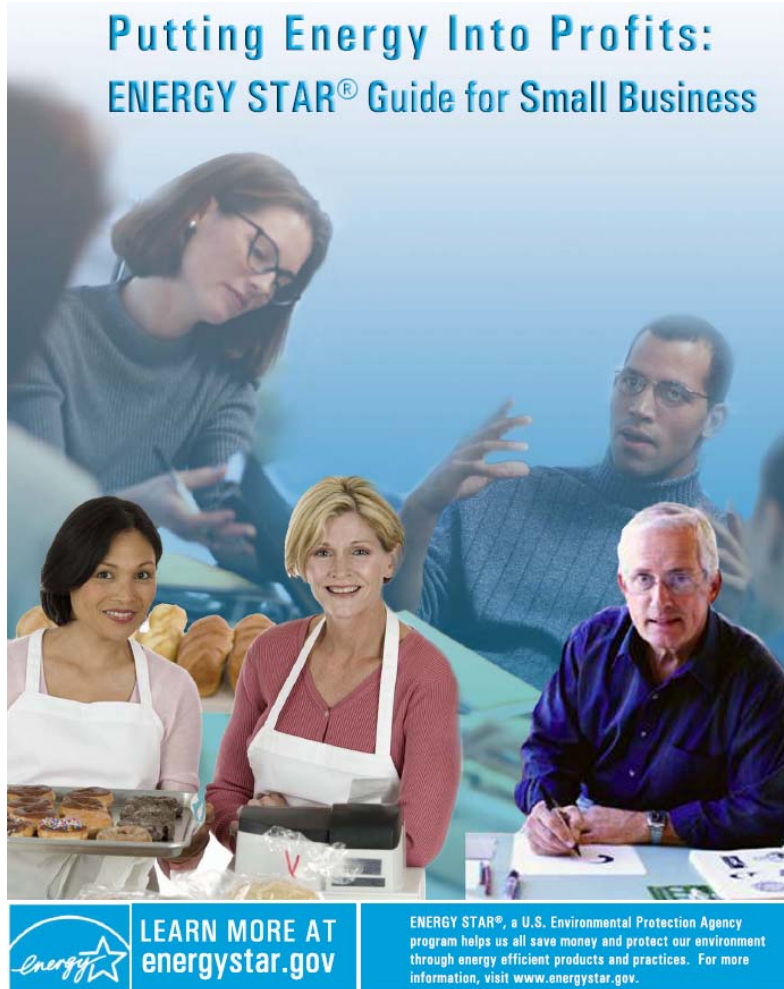


- *Energy efficiency upgrades can have payback periods of 1 year (CFL, LCD monitor) to 15-20 years (insulation, windows)*
- *Rebates typically reduce project costs by 20-50%*

Energy Efficiency

Increasing Cost 				
	Lighting	Equipment	HVAC	Generation
Why?	<ul style="list-style-type: none"> • Lighting = 20-50% of energy bill 	<ul style="list-style-type: none"> • Save energy and reduce heat 	<ul style="list-style-type: none"> • HVAC = 40% of energy bill 	<ul style="list-style-type: none"> • Energy independence and big incentives
No / Low Cost	<ul style="list-style-type: none"> • Turn off lights when not in use • Daylighting • <u>Technology</u> upgrades: <ul style="list-style-type: none"> – CFLs & LEDs – Exit signs (LED) 	<ul style="list-style-type: none"> • Energy Star products • Turn off machines / monitors • Equipment upgrades: <ul style="list-style-type: none"> – Laptops – LCDs – Surge protectors – Rechargeable batteries 	<ul style="list-style-type: none"> • Change filter quarterly • Control window sunlight • Cool with fans • Weather stripping • 3" appliance air gap • Annual "tune up" contract 	<ul style="list-style-type: none"> • Solar products: <ul style="list-style-type: none"> – Chargers – Lights
Major Investment 	<ul style="list-style-type: none"> • <u>Design</u> upgrades: <ul style="list-style-type: none"> – Fixtures – Controls (sensor, bi-level, dimmer) 	<ul style="list-style-type: none"> • Refrigeration 	<ul style="list-style-type: none"> • System upgrade • Building shell: <ul style="list-style-type: none"> – Insulation – Roofing – Windows – Walls 	<ul style="list-style-type: none"> • Solar – Walmart, Costco, IKEA, FedEx • Fuel cells – Caltech, Google, Staples

Energy Efficiency




Incentives:

- Utility energy audit
- Rebates
- Tax credits

Partners:

- US EPA Energy Star program:
 - www.energystar.gov
- Your local electric utility:
 - Edison: www.sce.com
 - LADWP: www.ladwp.com
 - SoCalGas: www.socalgas.com
 - Other municipal utilities

Water Conservation

Increasing Cost 		
	Fixtures	Landscaping
Why?	<ul style="list-style-type: none"> • Fixtures are low cost and fit into replacement cycle 	<ul style="list-style-type: none"> • 60% of water is used outdoors
No / Low Cost	<ul style="list-style-type: none"> • Turn off the tap • Rainwater capture system • Greywater • Automatic sink faucet 	<ul style="list-style-type: none"> • Drought tolerant / native landscaping • Drip irrigation • Smart irrigation controller
Major Investment	<ul style="list-style-type: none"> • Dual flush toilet / water-less urinal • Tankless water heater • High efficiency washing machine • Equipment upgrades: <ul style="list-style-type: none"> – Food equipment – HVAC – Medical / dental 	<ul style="list-style-type: none"> • Turf removal / re-landscaping • Permeable pavement • Bio-swale

- Incentives vary by region
- Water restrictions – check with your local water utility
 - No daytime watering, hosing down driveways
 - Broken sprinkler fines
 - Fixture upgrade upon sale

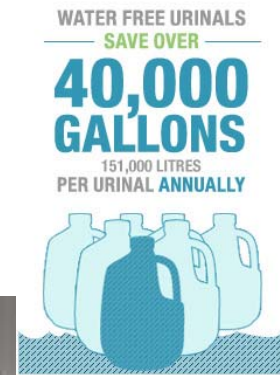
Water Conservation

Incentives:

- Rebates

Partners:

- Metropolitan Water District:
 - www.socalwatersmart.com
- Your local water company / utility:
 - LADWP: www.ladwp.com
 - Upper SGV Municipal Water District: www.usgvmwd.org
 - CA-American Water Co.: www.amwater.com/caaw
 - West Basin Municipal WD: www.westbasin.org
 - Other municipal water utilities



Other Investments

- GHG and Emissions reductions
 - Transportation
 - IRS “Commuter Tax Benefits” (§132(f))
 - PEV rebates and tax credits
 - Telecommuting, bike racks, carpooling
 - Waste reduction
 - Double sided printing, reusable cups, recycling, purchasing
 - Energy efficiency and water conservation
- Resources:
 - (Mobile emissions) CA Air Resources Board: www.coolcalifornia.org
 - (Stationary emissions) South Coast Air Quality Management District – Small Business Assistance Office: (800) CUT-SMOG



Summary – What Can You Do??

- Modify behavior
 - Turn off the lights, water, and equipment when not in use
 - Ride, walk, bus, train or carpool to work
- Take inventory
 - Do I have equipment that needs to be replaced?
 - Who is my electric / water utility?
 - Does my City have programs, incentives, requirements?
- Network
 - Small business success stories / pitfalls
- Identify projects
 - Prioritize – lowest cost, quickest payback, need-based
- Form partnerships
 - Apply for rebates / credits
 - Win small business award!

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Cynthia
Lozano-Vant Hul

Owner
Mariposa Eco Consulting

Business Recycling 101



Cynthia Vant Hul

Mariposa Eco Consulting

Why Recycle?

Recycling Saves Money

Selling recyclable materials offsets the extra costs of collecting and processing recyclables, making recycling the cheaper option for the community.

Recycling Saves Energy

By recycling about 30% of our waste every year, Americans save the equivalent of 11.9 billion gallons of gasoline and reduce the greenhouse gas of taking 25 million cars off

the road.



Why Recycle?

Recycling Prevents Pollution

When recycled materials are used in place of virgin materials during manufacturing, we avoid the environmental damage caused by mining for metals, drilling for petroleum, and harvesting trees.

Recycling Creates Jobs

For every one job at a landfill, there are ten jobs in recycling processing and 25 jobs in recycling-based manufacturing. The recycling industry employs more than the auto industry.



California AB 341: Mandatory Commercial Recycling

- The mandate sets a statewide 75% waste recycling goal which would result in a 5 million metric ton reduction in greenhouse gas and approximately 3 millions tons of waste from the landfill.
- Effective July 1, 2012, all businesses generating 4 cubic yards a week of waste, and multi-family complexes of 5 units or more are required to recycle.



Recycling

If It's Not

EEWWWWY,

Goosey

or

Chewy

Dirty napkins, kleenex, paper, diapers, pet waste,
cigarette butts, gum, food waste, bones

It's Recyclable!



Recyclable Items

Glass

Bottles and jars with no lids or caps (green, amber and clear)



Magazines

Remove metal/plastic binding



Aluminum/Metal

Beverage cans, aluminum foil, tin food cans, foil food containers (frozen dinner trays and pie plates)



Junk Mail

Window envelopes



Plastics

Containers with recycle emblem 1-7 with lids/caps placed separately (2-liter bottles, milk, detergent, water bottles and clear food containers)
No Styrofoam or plastic bags



Newspapers

Including inserts



Cardboard

Food boxes such as cereal, cake mix and cracker containers (remove liners), beer and soda carriers, shoe boxes, milk and juice cartons
No food/grease residue



Phone Books



Corrugated Boxes

Fold boxes flat and remove styrofoam, packing peanuts and plastic



Shredded Paper

Place in clear plastic bag and tie up



So the Question is.....

What is Really Trash??



How do I start my company's Recycling Program?

- Contract your local City to see if they have a recycling staff.
- Contract you local hauler to see if there is a cost to recycle or if no charge.
- Visit the Cal Recycle website:

<http://www.calrecycle.ca.gov/ReduceWaste/Business/factsheets/Offices.htm>

- Start a recycling committee to complete a waste survey and create program and policies.



Reduce

- Make fewer copies. Share copies and don't make more copies than you need.
- Print or copy on both sides.
- Proof documents on screen and preview before printing.
- Set up computers to automatically print two-sided.
- Use electronic mail and voice mail.



Reuse

- Collect paper that has been used on one side and reuse as draft paper in fax machines, for scratch pads and copies (in copiers with multiple trays, one tray can be stocked with draft paper).
- Buy only copiers and printers that will make two-sided copies reliably.
- Use reusable envelopes for interoffice mail.
- Shred newspapers and reuse for packaging.



Purchasing

- Buy and use paper with at least 25 percent postconsumer recycled content.
- Purchase products with no packaging, less packaging, or reusable packaging.
- Look for products in concentrate or bulk form.
- Request that deliveries be shipped in returnable containers and return cardboard boxes to distributor.
- Ask vendors to take back packaging. In some cases they may be able to reuse it.



What Are the Four (4) R's?

- Reduce waste- by not creating in the first place. Work with your purchasing department to buy items in bulk and with little packaging.
- Reusing materials- donate! Your waste/material could be others treasures. Organizations like Trash or Teaching, LA Shares and Habitat for Humanity.
- Rethink- With every item core toss, depending if it ends up in a landfill or compost, you make a difference. Every single action has consequences. What do you want the results of actions you take every single day to be? How can you make a positive difference?



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